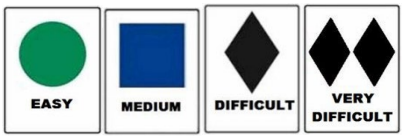
ACT4WD Club – Guide to Trip Risk Assessment

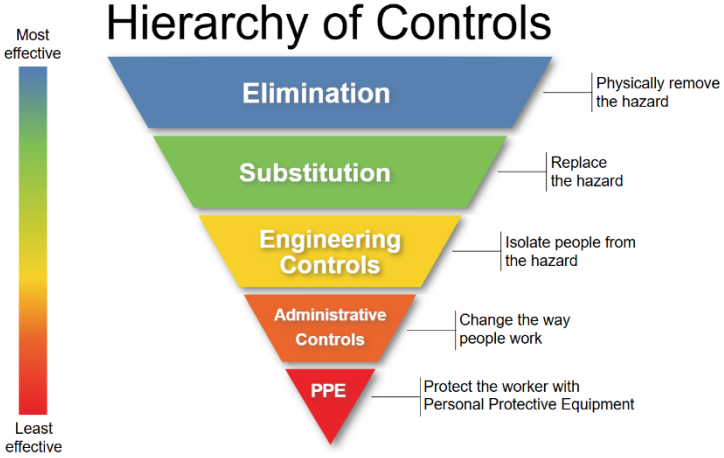
This guide is to accompany the trip notice advice and forms a part of the ACT4WD Clubs expected 'best practice for trip safety'. All trip attendants are to ensure they understand that offroad driving activities have some degree of risk associated to the vehicle and the occupants. This guide helps to mitigate that risk as best as practical in advanced preparation for a trip.

This guide, printed or electronic, is to accompany the trip leader to help the trip leader and the group reassess conditions as the trip evolves. Everyone is responsible for their own and others safety.

Part 1 – Risk Assessment guide, current for all trips as at July 2025				
Trip Name:			**Trip leader:**	
Planned duration:	**Day Trip**	**Track Classification: (can be multiple – delete those that don't apply)**		

Understanding a risk assessment matrix

This is a typical Hierarchy of risk control matrix used in most Australian industries, including the road transport industry



Translated to 4WD activities and recovery

Elimination	Training; vehicle preparedness; vehicle in good serviceable condition; off road lights; offroad tyres; a tyre repair kit; a suitable spare tyre; recovery gear; first aid kit; UHF Radio; spare clothes and food as necessary; an ICE card in the glove box; air compressors; shovel; recovery boards; know your and your vehicle's capabilities.
Substitution	Change route is possible; stop and think about it; is 4x4 engaged? air down for more traction; discuss options with experienced members in the group; do the least dangerous recovery possible, EG: air down, use recovery boards, dig out around wheels. Secure the vehicle if on an incline.
Engineered Solutions	Recovery points front and rear. Consider the resistance principles for incline and the MIRE principles for mud and sand bog's (see last page); a winch recovery is the safest and easiest to control, discuss options; consider what could go wrong with all options available to you. If you have a winch, ensure it works and is in good serviceable condition. Vehicle to vehicle recovery must be controlled and onlookers kept well clear.
Administrative controls	Training: trip preparation; pre trip briefings for each day; check and monitor the weather conditions; communication with others; club convoy procedure; this pre-trip risk assessment guide; maps; planning.
PPE and lack of experience	Lack of skills and training; overconfident; bravado; complacency; little to no preparation; little to zero suitable equipment; no personal PPE; alcohol and or drug affected; a careless approach; impatient: All will lead to a simple situation becoming a high-risk situation. ***It is better to be 5 minutes late than to lose a life in 1 minute***.

Pre trip planning. To be reassessed as the trip demands.

How severely could it hurt you or someone else Or How likely is vehicle damage likely to occur?	How likely is it to be that bad ?			
	1 Very likely Could it happen at any time	**2 Likely** Could it happen sometime	**3 Unlikely** Could happen but very rarely	**4 Very Unlikely** Could happen but probably never will
A. Kill or cause permanent disability or ill health. Vehicle damage	**H1**	**H2**	**H4**	**M7**
B. Long Term illness or serious injury	**H3**	**H5**	**M8**	**M11**
C. Possible physically demanding, may need first aid	**H6**	**M9**	**M12**	**L14**
D. Some difficulty may be experienced	**M10**	**M13**	**L15**	**L16**

HIGH 1- 6	**UNACCEPTABLE: STOP or reassess the route or activity** . **STOP - THINK - ASSESS**. If there is a likely hood that vehicle damage or injury may occur, change the route and reconsider the activity.
MEDIUM 7 – 13	**ONGOING MONITORING:** Ensure that everyone on the planned route or activity is comfortable to proceed as there is still some risk. Assist those less experienced, adopt the A.L.A.R.P, principle (As Low As Reasonably Practicable). Stop, check and reassess as many times as needed
LOW 14 – 16	**ROUTINE MONITORING:** No further action is required where residual risks are Low. However, ongoing monitoring is still required to ensure the risk does not escalate.

Type of possible Hazard / risk	**Proposed Controls / Solution (or risk register reference)**	**Risk Rating (Before controls)**	**Risk Rating (After controls)**
Vehicle preparedness	Have your vehicle prepared for this trip; for some trips this may require extra preparation; do your own research		
Trip planning	Good preparation will reduce risk; plan the trip; estimate the trip classification; how many stops; facilities along the route; etc		
Expected track classification	This can be multiple for any given trip. Do not expect that everyone will be experienced, take a sensible approach to trip classification,		
Will recovery be anticipated?	Advise participants that this may be the case and ensure as trip leader you are prepared. Find out who has a winch and associated recovery gear and place those participants in the middle and rear of the convoy.		
Will there be water crossing more than 300mm deep	Consider an alternative route. Take note of recent rain fall; avoid crossing more than 300mm deep, if possible; always walk the crossing first (if unsure of the depth wear PFD); a water crossing tarp on the front of the vehicle is recommended; cross slowly and with a constant speed.		

May there be a requirement for chain saw for track clearing	Does anyone in the group have a chainsaw ticket? If a chain saw is needed to clear fallen trees, it is best that a person with a ticket or experience lead the operation of clearing. Trees roll when being de-limbed; keep onlookers well clear; find an alternative route if possible; ensure that PPE is worn: leg chaps, gloves, visor, hearing protection.		
Do participants have an ICE form in the vehicle	Recommended for all club trip participants, ICE form is to be kept in the glove box so people know where to find it in case of an incident. It should list medical condition, medications, allergies, contact person details, etc.		
Will there be over nights stops / camping; extreme weather conditions	Plan ahead, consider adverse weather conditions from hot to cold; do not camp near a rivers edge if heavy rain (50mm and above) happened in the last 24hrs or heavy rain is expected; consider food requirements		
Radios and convoy procedure	Use the club convoy procedure keeping your position in the convoy as much as practical. If the convoy is long, nominate a radio relay vehicle in the middle; avoid unnecessary talk at times where messaging is necessary.		
Pre-trip briefing, daily updates as the trip proceeds	Always prepare a pre-trip brief so participants are clear on what to expect for the day; invite questions and ask if there are any concerns.		
EPIRBS and first aid kits and DEFIB	Ask if people have an EPIRB and or DEFIB, if so ensure that every person in the convoy knows where it is, how to get to it and use it. If a person on the trip has medical skills or advanced first aid, let it be known.		
Permits and permissions	For long trips, plan ahead and get land access permits where needed; never access property without permission; take only memories; leave only footprints		
Fuel availability	For long trips, plan regular fuel stops; some participants may not have long range tanks; consult with them and carry at least 30% reserve fuel if practical.		
Number of occupants	Limit the number of participants if the trip is going to have a high level of technical difficulty.		
Alcohol	Limit alcohol consumption to reasonable levels and for after hours, not while driving. An alcohol affected person may have difficulty operating a vehicle in difficult conditions putting themselves and the group at risk		
Steep descent / assent	Trip classification: advise participants that steep ascents and descents are a possibility; slow up and slow down; keep a reasonable distance between vehicles; allow for manoeuvring; control vehicle movements if needed, one at a time is the safest approach. Consider tyre pressure.		
Mud or snow	Be prepared for constant mud conditions, considering what this does to vehicle's operation. If it is hot, the vehicle will work harder so consider more stops. Reduce tyre pressures; clear excess mud from wheels if driving back on sealed road as excess mud can put the wheels out of balance and cause poor road handling. Snow chains are also useful in mud, **(DO NOT REDUCE TYRE PRESSURE IF CHAINS ARE FITTED)** .		

Trip Attendees - add more to the rear of the page if needed		
Name:	**Vehicle and Rego:**	**Phone Number:**

Winching and kinetic rope recovery danger zone guide

NB: When recovering with a snatch strap or rope, doubling the speed provides 4 times the energy.

Maximum snatch speed should be 10kmh.

3000kg Vehicle	
Speed	Energy
2 km/h	500
4 km/h	1900
8 km/h	7,500
16 km/h	30,000
32 km/h	120,000

Track classification guide

	EASY	MEDIUM	DIFFICULT	VERY DIFFICULT
Overview Description	All-wheel Drive and High Range 4WD. Novice Drivers.	Mainly High Range 4WD but Low Range required. Some 4WD experience or training required.	Significant Low Range 4WD with standard 4WD ground clearance. Should have 4WD driver training.	Low Range 4WD with high ground clearance. Experienced drivers.
Advisory Sign/Symbol	**Green Circle**	**Blue Square**	**Black Diamond**	**Double Black Diamond**
				
Expected terrain & track conditions	Mostly unsealed roads with no obstacles and minor gradients.	Tracks with some steep and/or rocky/slippery/sandy sections. May have shallow water crossings.	Tracks with frequent steep and/or rocky/slippery/sandy track sections. Possible water crossings.	Tracks with frequent very steep and/or rocky/slippery/sandy track sections. May have difficult river crossings.
Vehicle Suitability	All-wheel drive and High range 4WD. Can be low clearance with single range and road tyres.	Suitable for medium clearance vehicles with dual range and all terrain or road tyres.	Suitable for medium to high clearance vehicles with dual range and all terrain tyres.	Suitable for high clearance vehicles with dual range tyres suitable for the terrain. (Mud terrain tyres)
Recovery Equipment				Winch/Recovery equipment required.
Driver training experience	Suitable for novice drivers.	Recommended that drivers have experience or 4WD training. Recommended to be done in groups of vehicles.	Recommended for drivers with reasonable experience or 4WD training. To be done in groups of vehicles.	Drivers with extensive experience and advanced training should only attempt as there are several technical challenges. Recommended to be done in groups of four or more vehicles.
Weather	May be more difficult in wet conditions.	Will be more difficult in wet conditions.	Will be more difficult in wet conditions.	Will be more difficult in wet conditions.

The Easy Mire Calculator (worked example next page)

(Edz free electronic version here: https://mire-calculator.vercel.app)

GVM (Maximum Loaded Weight of Vehicle) _____kgs

Angle resistance	**((GVM x (Angle x 0.02))**	
10 Degrees	GVM x 0.2	
20 Degrees	GVM x 0.4	
30 Degrees	GVM x 0.6	_____kgs
40 Degrees	GVM x 0.8	
50 Degrees	GVM x 1.0	

Surface Modifier	**(GVM x Surface Modifier)**	
Hard Packed Dirt, Pavement	GVM x 0.1	
Gravel, Grass, Hard/Wet Sand	GVM x 0.2	
Thin Mud, Dry Sand	GVM x 0.3	+_____kgs
Thick Mud/Soft Wet Clay	GVM x 0.4	
Sticky Mud/Clay	GVM x 0.5	

Mire Depth Modifier	(GVM x Mire Depth Modifier)	
Wheel Depth Modifier	GVM x 1.0	
Hub/Frame Depth	GVM x 2.0	+_____kgs
Body/Hood Depth	GVM x 3.0	

Estimated Resistance (Angle + Surface + Mire) =_____kgs

20% Safety Margin (Estimated Resistance x 0.2) +_____kgs

Total Estimated Resistance = Estimated + Safety Margin = kgs

Mud resistance guide	
Mire Depth	Mire Factor
Hubs	1
Wheel wells	2
Fender line	3

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The Easy Mire Calculator – worked example

GVM (Maximum Loaded Weight of Vehicle) 2000 kgs

Angle resistance	**((GVM x (Angle x 0.02))**	
10 Degrees	GVM x 0.2	
20 Degrees	GVM x 0.4	
30 Degrees	GVM x 0.6	2000 x 0.6 = 1200 kgs
40 Degrees	GVM x 0.8	
50 Degrees	GVM x 1.0	

Surface Modifier	**(GVM x Surface Modifier)**	
Hard Packed Dirt, Pavement	GVM x 0.1	
Gravel, Grass, Hard/Wet Sand	GVM x 0.2	
Thin Mud, Dry Sand	GVM x 0.3	
Thick Mud/ Soft Wet Clay	GVM x 0.4	
Sticky Mud/Clay	GVM x 0.5	+ 2000 x .3 = 600 kgs

Mire Depth Modifier

(GVM x Mire Depth Modifier)

Wheel Depth Modifier	GVM x 1.0
Hub/Frame Depth	GVM x 2.0
Body/Hood Depth	GVM x 3.0

+ 2000 x 2 = 4000 kgs

Estimated Resistance

(Angle + Surface + Mire) = 1200 + 600 + 4000 = 5800 kgs

20% Safety Margin

(Estimated Resistance x 0.2) = +5800 x 0.2 = 1160 kgs

Total Estimated Resistance : Estimated R + Safety Margin

5800 + 1160 = 6960 kgs (3.5 x GVM!)